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DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
WASHINGTON

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Letter
Circular
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LC 234)

TESTING LABORATORIES
EQUIPPED FOR THERMAL EXPANSION
TESTS OF SOLIDS

Compiled by the Thermal Expansion Laboratory of the National Bureau of Standards, from the replies to a questionnaire which was distributed to educational institutions and commercial laboratories.

The National Bureau of Standards, in accordance with law, makes tests and carries out investigations for Government Departments, and for the public when such tests and investigations can not be satisfactorily carried out elsewhere. On account of the large amount of Government work, it is impracticable for the Bureau to make tests for private individuals or companies if other laboratories can satisfactorily do the work.

The attached list has been prepared to inform persons interested, of the location of laboratories equipped to do such work and of the types of tests which these laboratories state they are prepared to carry out.

The Bureau is not able to give all details of sizes of samples, accuracy of results and cost of tests. These matters should be taken up with the individual laboratories selected to do the testing.

State	City	Laboratory	Temperature Range	Remarks
California	Pasadena	R. C. Burt Scientific Laboratories, 1212 E. Green St.	-200 to +2000°F	Interferometer on small samples. Indicator on large samples.
Connecticut	Hartford	Stanley P. Rockwell Co., 296 Homestead Ave.	100 to 1700°F	Rockwell dilatometer. Samples from 1 to 6 inches in length. Lateral dimensions from 1/4 to 2 inches.
Illinois	Urbana	University of Illinois, Attn: Prof. C.W. Parmelee, Dept. of Ceramic Engineering	Room temperature to about 1000°C.	Interferometer and also equipment to measure expansion directly. Samples for latter equipment about 9 inches long, 1 inch diameter.
Iowa	Ames	Iowa State College, Attn: Prof. Jay W. Woodrow, Dept. of Physics	0 to 100°C	Micrometer eyepiece telescopes and dividing engine.
Iowa	Iowa City	The State University of Iowa, Attn: Dr. N.H. Ceaglske, Dept. of Chemistry and Chemical Engineering	0 to 200°C	Interferometer. Samples 1 cm long, 0.5 cm diameter.
			0 to 200°C	Micrometer microscopes. Samples 9 to 12 inches long, 1/2 inch diameter.
			0 to 700°C	Fused quartz apparatus. Samples 20 inches long, 1 inch diameter.



State	City	Laboratory	Temperature Range	Remarks
Massachusetts	Cambridge	Prof. Gordon B. Wilkes, Massachusetts Institute of Technology, Laboratory of Heat Measurements	Room temperature to 1500°C.	Interferometer, micrometer eyepiece telescopes, etc.
Minnesota	Minneapolis	The University of Minnesota, Attn: Prof. Frank B. Rowley, Director, Experiment Station	Up to 300°F.	
New Jersey	New Brunswick	Rutgers University, Dept. of Physics	0 to 100°C.	Micrometer eyepieces, micrometer screws.
New York	New York	New York Testing Laboratories, Attn: G. J. Horvitz, Technical Director, 80 Washington St.	-100 to +2800°F.	Preferably rods 1 to 10 inches long, 1/4 to 1 inch diameter, depending on material and temperature. Accuracy to a very small fraction of 1%.
New York	Troy	Rensselaer Polytechnic Institute, Attn: Augustus Jones, Dept. of Metallurgy	20 to 1000°C.	Method used measures difference in expansion between sample and fused quartz. Sample preferred 4 inches long, 3/16 inch diameter.
North Carolina	Raleigh	State College Unit, University of North Carolina, Attn: Prof. A. F. Greaves-Walker, Dept. of Ceramic Engineering.	Room temperature to 2300°F.	Maximum dimensions of samples, 4 1/2 inches long by 1 inch cross section.



State	City	Laboratory	Temperature Range	Remarks
Ohio	Columbus	Ohio State University, Attn: Prof.G.A. Bole, Engineering Experiment Station	Room temperature to 1000°C.	Elongated rod method. Samples 7 to 8 inches long, 3/8 to 5/8 inch diameter. Also interferometer method.
Pennsylvania	Pittsburgh	Pittsburgh Testing Laboratory	Temperature of dry ice to 1500° F.	Maximum dimensions of samples, 8 inches long, 5/8 inch diameter.
Texas	Houston	Rice Institute, Attn: Prof. J. H. Pound, Dept. of Mechanical Engineering		Simple tests
Virginia	Blacksburg	Virginia Polytechnic Institute 1. Applied Mech. Dept., Attn: Prof.D. H. Pletta 2. Dept. of Metallurgy, Attn: Prof.H.V. White	Room temperature to 212°F. Room temperature to 1500°F.	Stone and concrete samples 8 inches long by 1 inch square Metal samples 20 cm long by 1 cm.

